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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/708,202 | 02/16/2004 | Ying-Yao Lin | REAP0008USA | 2201 |

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NORTH AMERICA INTERNATIONAL PATENT OFFICE (NAIPC)
P.O. BOX 506
MERRIFIELD, VA 22116

| EXAMINER | |
|---|---|
| NGUYEN, LINH V | |
| **ART UNIT** | **PAPER NUMBER** |
| 2819 | |

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/708,202 | LIN ET AL. | |
| | Examiner | Art Unit | |
| | Linh V. Nguyen | 2819 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _____ is/are rejected.

7)☒ Claim(s) *6 and 9-12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/16/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. This office action is in response to application 10/708,202 filed on 02/26/04.

Claims 1 – 13 are pending on this application.

### *Specification*

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Objections*

3. Claim 12 is objected to the phrase "can be " renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claim 1 – 5, 7, 8, 12 and 13 are rejected under 35 U.S.C. 102(a) as being anticipated by Applicant Admitted Prior Art (AAPA).

Regarding claim 1, Fig. 1 and 2 of AAPA discloses a variable gain amplifier (Fig. 1), comprising: an amplifying stage (differential transistors of Vin input to the base) for generating an output voltage out (V out) according to an input voltage (Vin') and a variable gain stage (differential transistor of Vy input to the base) for adjusting a voltage gain of the amplifying stage (Fig. 2 (AV)) according to at least a controlling volt age (Vy) wherein the voltage gain is a simple exponential function (Fig. 2), and the value of the simple exponential function is determined by the controlling voltage (Vy).

Regarding claim 2, wherein the simple exponential function (AV) comprises a function which raises a base (exp) to the power of an addition operation (Vy/Vt) of a argument, without an addition operation or a operation with a constant being perform on the function (Fig. 2 discloses Av = K/exp(Vy/Vt) without any addition or subtraction operation. Since, control voltage Vy>> than Vt then the constant 1 of Av function becomes insignificant)

Regarding claim 3, wherein the at least one controlling voltage comprises a first controlling voltage (Vy+ and a second controlling voltage (Vy-), and the value of the simple exponential function is determined by the difference between the first and the second controlling voltages (this is inherent characteristic of Fig. 1, Since the Vout' and Vout'' gain of are dependent upon the differential of controlling voltage Vy. Therefore the gain value of exponential function Av must be determined by the differential of voltage control signal Vy+ -) .

Regarding claim 4, wherein the variable gain stage (transistors of Vy+/Vy-) is a transconductance amplifier for generating a gain current (Iin' – Iout', I out') according to the difference between the first and the second controlling voltages (Vy +, Vy-).

Regarding claim 5, wherein the variable gain stage comprises: a first transistor coupled to the first controlling voltage (Transistor of Vy+) a second transistor coupled to the second controlling voltage (transistor of Vy-) ; a first current source ( Transistor of Vin') coupled to the emitter of the first and the second transistors for providing a first current (Iin'), and a second current source (Vcc is a source for generating a current Iout' and Iin'- Iout') for generating the gain current, wherein the value of the gain current (Iin' – Iout') is determined by the first current (Iin') and the difference between the first and the second controlling voltages (Vy+, Vy - )

Regarding claim 7, wherein the amplifying stage (Fig. 1) comprises: an input unit (Transistor of Vin') coupled to the input voltage for generating an input current according to the input voltage (Vin') a current transforming unit (Transistor of Vy-) for generating a second current (Iout') according to the gain current (Iin' – Iout') and a transresistance (R) amplifying unit for generating the output voltage (Vout'), wherein the value of the output voltage is determined by the input current (Iin') and the second current (Iout').

Regarding claim 8, wherein the input unit comprises an input transistor ( transistor of Vin' input ) coupled to the in-put voltage (Vin') for generating the input current (Iin') according to the input voltage (Vin').

Regarding claim 13, wherein the variable gain amplifier is the half-circuit of a differential amplifier (Fig. 1 as applied to claim 1 above disclosing Iin', Iout', Vy, Vin' and Vout' is a half of differential amplifier circuit of Fig. 1).

***Allowable Subject Matter***

6. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Prior art does not teach or suggest the variable gain stage further comprises: a first resistor coupled between the collector of the first transistor and the second current source; and a second resistor coupled between the collector of the second transistor and the second current source.

7. Claim 9 – 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. With respect to claim 9, Prior art does not teach or suggest the variable gain stage comprises: wherein the current transforming unit comprises: a third transistor, the collector of the third transistor being coupled to the base of the third transistor; a fourth transistor; a third current source coupled to the emitter of the third and the fourth transistors for providing and a third current; a fourth current source for generating the second current; whereby the ratio between the third current is substantially equivalent to current and the first the ratio between the second current and the gain current.

***Prior Art***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh Van Nguyen whose telephone number is (571) 272-1810. The examiner can normally be reached from 8:30 – 5:00 Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Tokar can be reached at (571) 272-1812. The fax phone numbers for the organization where this application or proceeding is assigned are (703-872-9306) for regular communications and (703-872-9306) for After Final communications.

6/3/05

Linh Van Nguyen

Art Unit 2819